

# DAIRY SCIENCE (DS)

## Faculty:

Larry D. Morris, Chairperson

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The curriculum in Dairy Science emphasizes the basic sciences, economics, and general education, as well as courses in professional dairy science. As a result, the students are prepared to enter a wide variety of occupations directly and indirectly related to the field of specialization.

With a 95% rate of placing graduates within six months of graduation, Dairy Science graduates have a variety of employment opportunities. Opportunities for graduates in dairy science are found principally in six occupational categories: sales and service, production, teaching, veterinary medicine, research and agribusiness. The drug and feed industries are particularly interested in dairy science graduates for sales and administrative positions. Service opportunities are available in state and federal civil services, artificial insemination, state extension services, dairy plant and farm inspection, and cooperatives offering supplies and services to the dairyman.

A number of graduates enter productive farming as dairy herd managers, farm managers, and farm owners. Teaching at the secondary school level in the sciences has become an increasingly popular field for graduates in dairy science. In recent years, also, graduate work leading to industrial research and college teaching positions has been attracting a number of graduates.

Students interested in attending veterinary school can meet the requirements for veterinary programs offered in the United States through the Dairy Science program. Veterinary schools have different admission requirements; thus, students should choose their elective credits carefully to meet Veterinary School requirements.

The total number of credits required for graduation with a degree in Dairy Science is 128 plus 4 credits earned for successful completion of the Employment Program.

## Recommended Course Sequence

### Freshman Year

#### First Semester

Course No.	Course Title	Credits	Hours
AS 1006	Introduction to Animal Science	3	(2-3)
EN 1101	English I or		
EN 1111	Advanced English I	3	(3-0)
MP 1102	College Algebra or		
MP 1203	Elementary Functions	3	(3-0)
CH 1103	General Chemistry I	4	(3-3)
BY 1116	Biological Science I	3	(2-3)
PE 1109	Physical Education I	1	(0-2)
		17	

#### Second Semester

DS 1065	Principles of Dairy Science	3	(2-3)
EN 1201	English II or		
EN 1211	Advanced English II	3	(3-0)
MP 1203	Elementary Functions or		
MP 1204	Calculus I	3-4	(3-4)
CH 1203	General Chemistry II	4	(3-3)
BY 1217	Biological Science II	3	(2-3)
PE 1209	Physical Education II	1	(0-2)
		17-18	

### Employment Program

DS 2370	Employment Program	1-2	
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### Sophomore Year

#### First Semester

Course No.	Course Title	Credits	Hours
AE 2007	Feed Grains and Forages	3	(2-2)
CH 2003	Principles of Organic Chemistry	4	(3-3)
LA 2005	Speech	3	(3-0)
IT 1011	Information Technology Concepts	1.5	(1.5-0)
IT 1012	Computer Applications	1.5	(1.5-0)
BY 2003	Genetics	3	(2-1)
DS 3029	Large Animal Genetics Lab	1	(0-3)
		17	

#### Second Semester

DS 2213	Dairy Cattle Judging	1	(0-3)
DS 2230	Physiology of Lactation	3	(3-0)
CH 2203	Biochemistry	4	(3-3)
EN 2028	Introduction to Literature Elective	3	(3-0)
		6	
		17	

### Employment Program

DS 2370	Employment Program	4	
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**Junior Year****First Semester**

<u>Course No.</u>	<u>Course Title</u>	<u>Credits</u>	<u>Hours</u>
DS 3118	Anatomy and Physiology I	3	(2-3)
BY 3002	General Microbiology	4	(3-3)
AS 4106	Principles of Animal Nutrition	3	(2-3)
LA 1060	Introduction to the Arts	3	(3-0)
LA 4037	Non-Western Societies	3	(3-0)
		16	

**Second Semester**

DS 3226	Dairy Husbandry Techniques I	2	(1-3)
DS 3221	Anatomy & Physiology II	3	(2-3)
DS 3010	Animal Feeding and Nutrition	3	(2-3)
AS 4214	Animal Diseases	3	(3-0)
LA 3032	American History and Government Since 1933	3	(3-0)
	Elective	3	
		17	

**Senior Year****First Semester**

<u>Course No.</u>	<u>Course Title</u>	<u>Credits</u>	<u>Hours</u>
DS 4115	Seminar	1	(1-0)
DS 4143	Dairy Husbandry Techniques II	2	(1-3)
DS 4134	Physiology of Reproduction	3	(2-3)
LA 2040	Modern History of Western Societies	3	(3-0)
LA 4038	Cultural Enrichment	1	
	Electives	6	
		16	

**Second Semester**

DS 4235	Dairy Systems and Management	3	(2-3)
BA 2008	Macroeconomics Philosophy/Psychology/ Sociology Area	3	(3-0)
	Elective	3	
		12	

**Minors**

Students majoring in Dairy Science may enroll in an interdisciplinary minor among the following. Substitutions may be arranged in advance with permission of the Department Chairperson.

Agribusiness, Agronomy and Environmental Science, Animal Science, Biology, Biotechnology, Business Administration, Chemistry, Food Science & Management, Pre-Veterinary Science

Students interested in veterinary school and the 3+1 Program should see the Department Chairperson to arrange their course selection.

**Course Descriptions****DS 1065 Principles of Dairy Science**

This course is a study of the extent and importance of the dairy industry in the U.S. It is designed to develop an understanding of the principles of nutrition, breeding, selection, records, and improvement programs employed by the dairy industry. Attention is also given to milk quality and the spectrum of dairy products. 2 hours Lecture and 3 hours Laboratory—3 credits

**DS 2213 Dairy Cattle Judging**

The judging of dairy cattle for the purpose of understanding ideal dairy type and applying type as a measure of utility is considered. Introduction to oral reasons in defense of placing a class of dairy animals is discussed and how to deliver an effective set of oral reasons is presented. 3 hours Laboratory—1 credit

**DS 2230 Physiology of Lactation**

This course is a study of the anatomy and physiology of the mammary gland. Special emphasis is placed on the hormonal control of mammary growth and on the initiation and maintenance of lactation. Consideration is also given to the biochemistry of milk secretion and factors affecting milk yield and composition. 3 hours Lecture—3 credits

**DS 3000, 4000 Selected Topics I and II**

Special projects designed to meet individual needs of students in the specialized fields of agriculture. Projects will be arranged on a one-to-one basis with a department faculty member and with the approval of the Department Chairperson. Total Selected Topics credit accepted toward graduation is limited to 2 credits. 3 hours of student/faculty instruction per week—1 credit

**DS 3010 Animal Feeding and Nutrition**

A comprehensive study is presented of the principles of animal nutrition and how different kinds of feeds are used in the formulation of rations for farm animals. Attention is given to the methods that are used in feeding all large animals in relation to their different digestive systems. Major emphasis is placed on the practice of developing rations for farm animals. Prerequisite: Principles of Animal Nutrition or Permission of Instructor. 2 hours Lecture and 3 hours Laboratory—3 credits

**DS 3029 Large Animal Genetics Laboratory**

The study of factors responsible for changes in the genetic composition of animal populations is presented. Using current concepts in genetics and statistics, the relationships of both heredity and environment to individual performance are considered. Various mating systems and their consequences on animal production are also studied. Co-requisite: Genetics (Students must enroll in both BY 2003 and DS 3029) 3 hours Laboratory—1 credit

**DS 3118, 3221 Anatomy and Physiology I and II**

A comprehensive study of the functions of mammalian bodies with special emphasis on domestic animals. A detailed examination is provided concerning the principles of physiology at the cellular, tissue, and organ system levels. Emphasis is placed upon the correlation between anatomical structure and function. The laboratory centers on the practical application of the principles presented in the lecture. Prerequisites: Biology I and II or Biological Science I and II. A grade of D or better must be obtained in Anatomy and Physiology I before students can enroll in Anatomy and Physiology II. 2 hours Lecture and 3 hours Laboratory—3 credits

**DS 3120 Advanced Selection of Dairy Animals**

Comprehensive judging and selection of dairy cattle using evaluative techniques as well as an in-depth study and presentation of oral reasons in defense of placings and subsequent decisions. Limited enrollment as field visits to various farms may be utilized. Prerequisite: Dairy Cattle Judging. 3 hours Laboratory—1 credit

**DS 3211 Applied Dairy Cattle Genetics**

This course is a study of current developments and programs associated with the major dairy breeds. The course also includes the current methods and technology used in evaluating sires. Considerable time will be spent on the selection of sires to use in a dairy herd mating program. Studies are made of breed classification programs, pedigree evaluation, sire summaries and prominent bloodlines. Prerequisite: Dairy Cattle Judging or Permission of Instructor. 1 hour Lecture and 3 hours Laboratory—2 credits

**DS 4041 Senior Research**

Selected seniors engage in this course in supervised investigations involving library work and laboratory or field experiments related to Dairy Science. Requirement: Permission of Department Chairperson. 1-3 credits

**DS 4115 Seminar (Dairy Science)**

A study of the technical and scientific literature in the field of Dairy Science with special emphasis on discussion of the literature reviewed. 1 hour Lecture and Discussion—1 credit

**DS 4116 Advanced Dairy Judging**

This course provides intensive training in selection of dairy cattle using subjective and objective measurements as well as the use of oral reasons to explain and defend decisions. An Intercollegiate Dairy Judging Team is selected from students taking this course. Due to considerable travel and time required, enrollment is limited and a 2.0 academic average is required. In addition, the course begins one week prior to the start of the Fall Semester. Prerequisite: Dairy Cattle Judging and Permission of Instructor. 3 hours Lab—1 credit

**DS 4134 Physiology of Reproduction**

This course covers the physiology of reproduction in farm animals. The sexual characteristics of the male and female, the physiology of the semen and ova, hormonal control of reproduction, and reproduction in each of the farm species are discussed. 2 hours Lecture and 3 hours Laboratory—3 credits

**DS 4235 Dairy Systems and Management**

A comprehensive study of the business of dairy farming and the dairy industry, including pertinent economic, nutritional, and environmental problems. Prerequisite: Animal Feeding and Nutrition. 2 hours Lecture and 3 hours Laboratory—3 credits

**Specialized Methods and Techniques**

Each major department offers a series of courses designed to acquaint the student with various applications of the professional specialty.

**DS 3226 Dairy Husbandry Techniques I**

This course covers the application of hormones, feed additives, chemicals and drugs in the feeding, breeding and management of dairy animals. The student works with various dairy improvement programs. Throughout the course, emphasis is placed on the general care and management of dairy animals. Corequisite: Animal Feeding and Nutrition or Permission of Instructor. 1 hour Lecture and 3 hours Laboratory—2 credits

**DS 4143 Dairy Husbandry Techniques II**

This course is a continuation of DS 3226 and incorporates the practical aspects of dairy cattle management, mastitis control, feeding and breeding. Students are involved in heat detection, feeding and milking as well as the study of Dairy Herd Improvement proceedings. Prerequisite: Dairy Husbandry Techniques I or Permission of Instructor. 1 hour Lecture and 3 hours Laboratory—2 credits

**Employment Program****DS 2370 Employment Program**

Dairy Science students are required to spend 24 weeks (960 hours) in approved jobs related to the student's major. Registration for each Employment Program must occur prior to the beginning of a relevant experience. Registration materials are available from Career Services, in Segal Hall. 24 wks of On-the-Job Training—4 credits